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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/338,827 06/23/99 VALFELLS

A P03993US0

EXAMINER

IM22/0508

EDMUND J SEASE  
801 GRAND AVENUE  
STE 3200  
DES MOINES IA 50309

NAME, E	
ART UNIT	PAPER NUMBER

1754  
DATE MAILED:

05/08/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/338,827

Applicant(s)

Valfells

Examiner

Eileen E. Nave

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 23 June 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A) Claims 1 and 8 recite the limitation "the actinides". There is insufficient antecedent basis for this limitation in the claim.

(B) Claim 1 recites the limitation "the balance" in line 5. There is insufficient antecedent basis for this limitation in the claim.

(C) Claim 1 recites the limitation "the fission products" in line 5. There is insufficient antecedent basis for this limitation in the claim.

(D) Claim 1 recites the limitation "the fission product matrix" in line 11. There is insufficient antecedent basis for this limitation in the claim.

(E) Claim 1 recites the limitation "the core" in line 11. There is insufficient antecedent basis for this limitation in the claim.

(F) Claim 1 recites the limitation "the radiation" in line 17. There is insufficient antecedent basis for this limitation in the claim.

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(G) Claim 1 recites the limitation "the sphere" in line 22. There is insufficient antecedent basis for this limitation in the claim.

(H) Claim 4 recites the limitation "the storage" in line 1. There is insufficient antecedent basis for this limitation in the claim.

(I) Claim 5 recites the limitation "the separated actinides" in line 1. There is insufficient antecedent basis for this limitation in the claim.

(J) Claim 11 recites the limitation "the embedding metal matrix". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sump (US 4,115,311) in view of Leuchtag (US 4,320,028).

Sump discloses containing nuclear waste in a storage container containing a gravity sintered metal matrix for high-level radioactive waste. Sump discloses that nuclear waste storage container containing a metal matrix for the nuclear waste are desired to provide greater impact strength for the waste container and to increase the thermoconductivity to prevent undesirably high centerline temperatures (col. 1, ln. 9-16). The matrix materials are high temperature resistant materials such as greater than about 750 °C to about 1500 °C (col. 2, ln. 10-12).

Sump discloses that the high-level waste particles may be obtained from glass particle fabrication processes or ceramic particle fabrication processes wherein the waste form utilizes existing calcining processes with a compositionally modified waste liquid to achieve an improved or supercalcine waste form in which generally all of the radioactive atoms will be isolated in thermally and chemically stable phases. For example, the high level waste particles may be chemical vapor deposition alumina and pyrolytic carbon coated improved ceramic particles or supercalcine ceramic particles, and generally contain fission products as ceramic oxides or as glass modifiers. The properties of the matrix materials that are desirable are a high melting point, good thermoconductivity, good mechanical strength, good corrosion characteristics in salt, water, and/or air, and good oxidation resistance in air, at operating temperatures. The metal matrix powders that may be used are such as pure copper and its alloys, pure iron and its alloys, stainless

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steels and superalloys (col. 4, ln. 64 - col. 5, ln. 20). Sump also discloses that lead and aluminum matrixes are known in the art (col. 1, ln. 21-22).

Sump also discloses that the container may be made of any suitable material such as AISI 304 Series stainless steel having properties such as heat resistance, resistance to degradation upon exposure to the environment, thermostability, and the like. A mild steel having a protective coating may likewise be used for the container which is used for containment of the matrix powder with the high-level waste particles. Various storage container have been previously used for containing high-level waste in cast matrices (col. 54-63).

Sump does not disclose that the container is heated and then melts its way down into a permanent icefield; however, it would have been obvious to one of ordinary skill in the art to heat the container of Sump so that it may melt its way down into a permanent icefield because the corrosion resistant container of Sump is already heated to high temperatures and Leuchtag teaches that it is known to store nuclear waste at least 300 m deep so as to lie below the permafrost level in any future ice age (col. 3, ln. 10-14).

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*Conclusion*

6. No claims are allowed.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eileen E. Nave whose telephone number is (703) 305-0033.

SEN  
Nave/een

May 7, 2001

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
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